

CLAIMS:

Sub A4  
1. A method of enhancing protein absorption and utilization from the gastrointestinal tract of a subject in need of such enhanced protein absorption and utilization comprising the oral administration of a combination of milk protein concentrates and probiotic bacteria.

2. The method of claim 1 wherein the probiotic bacteria is selected from the group consisting of *bifido* bacteria, *Lactobacillus plantarum*, *Lactobacillus helveticus*, *Lactobacillus paracasei*, *Lactobacillus bulgaricus*, *Streptococcus thermophilus* and combinations thereof.

3. The method of claim 1 wherein the probiotic bacteria consists of *bifidus longum* combined with *Lactobacillus bulgaricus* and *Streptococcus thermophilus*.

4. The method of claim 1 wherein the combining milk protein concentrate has a protein content of about 65% to about 90%.

5. The method of claim 5 wherein the probiotic organism is present in a total organism count of about 100,000 to about 50,000,000 organisms per gram of milk protein concentrate,

6. The method of claim 1 wherein the combination of milk protein concentrates and probiotic bacteria is administered in an amount wherein when combined with the subject's diet, a total daily consumption of protein by the subject does not exceed approximately 1.5 grams to approximately 4.0 grams of protein per kilogram of body weight per day.

7. A method of enhancing protein utilization absorption in a subject on a high protein diet comprising the oral administration of comprising the oral administration of combination of milk protein concentrates and probiotic bacteria selected from the group consisting of *bifido* bacteria, *Lactobacillus plantarum*, *Lactobacillus helveticus*, *Lactobacillus paracasei*, *Lactobacillus bulgaricus*, *Streptococcus thermophilus* and combinations thereof.

8. The method of claim 7 wherein the probiotic bacteria consists of *bifidus longum* combined with *Lactobacillus bulgaricus*, *Streptococcus thermophilus*.

9. The method of claim 8 wherein the combination of milk protein concentrates and probiotic bacteria is administered in an amount wherein the subjects total daily intake of protein does not exceed approximately 1.5 grams to approximately 4.0 grams of protein per kilogram of body weight per day from both the high protein diet and the combination of milk protein concentrations and probiotic bacteria.

10. A method of promoting higher ratio of anabolism as compared to catabolism, increasing muscle tissue growth, reducing harmful side effects from consuming large quantities of protein, increasing amino acid production in the intestinal tract in an athlete and more efficiently utilizing each gram of protein consumed by the athlete comprising the consumption by the athlete of a combination of milk protein concentrates and probiotic bacteria selected from the group of probiotic bacteria consisting of *bifido* bacteria, *Lactobacillus plantarum*, *Lactobacillus helveticus*, *Lactobacillus paracasei*, *Lactobacillus bulgaricus*, *Streptococcus thermophilus* and combinations thereof.

11. A process for producing an improved probiotic protein concentrate comprising the steps of:

providing a probiotic organism culture, the culture containing *Bifido* bacteria and lactic acid producing bacteria;

filtering skim milk fluid by passing the skim milk through a filtering membrane to separate out non-protein constituents of the skim milk;

discontinuing the filtering of the skim milk when the skim milk protein content is about 65% to about 90% of the milk, thereby generating a skim milk protein concentrate; and

inoculating the skim milk protein concentrate with the probiotic organism cultures until a total organism count reaches about 100,000 to about 500,000 organisms per gram of skim milk protein concentrate.

12. The process according to claim 11 wherein the lactic acid producing bacteria is chosen from the group consisting of *Lactobacillus plantarum*, *Lactobacillus helveticus*, *Lactobacillus paracasei*, and combinations thereof.

13. The process according to claim 11 wherein the step of providing probiotic organisms includes introducing a starter culture containing said probiotic organisms into a tank to produce hydrolyzed milk peptones; and

feeding the probiotic organisms with a base medium to grow the probiotic organisms, the base medium comprising food and nutrients which are combined with hydrolyzed milk peptones.

14. The process according to claim 11 including the step of converting the inoculated skim milk protein concentrate from a fluid to a powder by spray drying the fluid inoculated milk protein concentrate.

15. A process for producing probiotic protein concentrate comprising the steps of :

combining a powder form of skim milk having a skim milk protein content of about 65% to about 90% with with freeze-dried powder forms of probiotic organism culture until a total organism count within the combined powder reaches about 100,000 to about 50,000,000 organisms per gram of skim milk protein concentrate, said organism culture containing *Bifidio* bacteria and lactic acid producing bacteria ; and

mixing the powdered skim milk protein concentrate with the powdered probiotic organism culture until the comined powder is homogenous.

16. The process according to claim 13 wherein the lactic acid producing bacteria is chosen from the group consisting of *Lactobacillus plantarum*, *Lactobacillus helveticus*, *Lactobacillus paracasei*, and combinations thereof.

17. A probiotic milk protein concentrate including the following ingredients by percentage of weight, of the concentrate including:

Milk having a milk protein concentrate of 65% to 90%; and

probiotic organisms in an amount of 100,000 to 50,000,000 organisms per gram of milk protein concentrate; said probiotic organisms including:

A. *Bifido* Bacteria - .01% to 1%

B. *Acidophilus* Bacteria - .01% to 1%; and

C. 0.01% to 1% of a Lactic Acid Producing Bacteria chosen from the group consisting essentially of

c. *Lactobacillus Acidophilus*

mixing said ingredients until their diffusion is thoroughly achieved within the powdered concentrate.

18. The probiotic milk protein concentrate of claim 5, and wherein one or more of the following probiotic organisms may be added to the concentrate by weight of 0.1% to 1%:

- A. *Lactobacillus plantarum*
- B. *Lactobacillus helveticus*
- C. *Lactobacillus paracasei*
- D. *Bifidobacterium bifidum*
- E. *Bifidobacterium infantis*
- F. *Bifidobacterium animalis*